

AusRAP Star Rating Maps for Rural Western Australian Roads

Summary

This report provides the star rating maps for the major rural road network in Western Australia based on the AusRAP Road Protection Score (RPS) methodology. The process focussed on rural open roads with a posted speed limit of 90km/h or more. It provides a method of assessing the inherent safety of the road network based on the engineering features of that network. The model is centred on the consideration of the three primary crash types that occur on rural high-speed environments, namely:

- Run-off road crashes
- Head-on crashes, and
- Intersection crashes.

The proportion of network (measured as carriageway kilometres of roadway) in each star category is shown below:

Total carriageway kilometres of roadway	Proportion of WA network in each star category (%)				
	*	**	***	****	*****
19183	0.0	9.9	53.4	36.8	0

1 Introduction

The AusRAP initiative (Australian Road Assessment Program) builds on the broad principles behind EuroRAP (the European Road Assessment Program). AusRAP is intended to be a companion program to the ANCAP initiative (Australian New Car Assessment Program) and provides road users with an appreciation of the safety of the road environment through the use of two key outcomes:

- Risk mapping of casualty crashes, and
- The “Road Protection Score” (RPS)

The risk mapping of casualty crashes has been undertaken by the Australian Automobile Association (AAA) and state associations with the initial results launched in the inaugural AusRAP report in March 2005. More recently (July 2006) the total AusLink rural network has been mapped and rated by ARRB Group for the AAA. In the current project the Royal Automobile Club of Western Australia (RACWA) commissioned ARRB Group to map and rate rural Western Australian (WA) roads that are not part of the AusLink network.

Background to the road protection score (RPS)

The development of the Road Protection Score (RPS) component of the AusRAP initiative commenced in 2004 with the RACV taking the lead role in representing the automobile clubs interests in the AusRAP RPS model development.

The RPS concept has been designed as a measure of the inherent safety of a road network. While crash data provides an indication of where crashes occur across a network the RPS is designed to proactively measure the safety performance of the engineering features of the road network. The aim of the RPS is to provide a star rating of the road network in a similar manner to current 5 star rating scales for new car safety and accommodation. A 5 star road will provide road users with the safest

form of design standards in regard to road cross section, layout, roadside environment and intersection design and frequency. The ultimate aim of the automobile clubs is to have 5 star drivers, in 5 star cars on 5 star roads. When this is achieved “Vision Zero” or a road network without fatalities can become a reality.

2 AusRAP Star Rating Map

The star rating for each of the roads assessed is displayed in Figure 2-1 below.

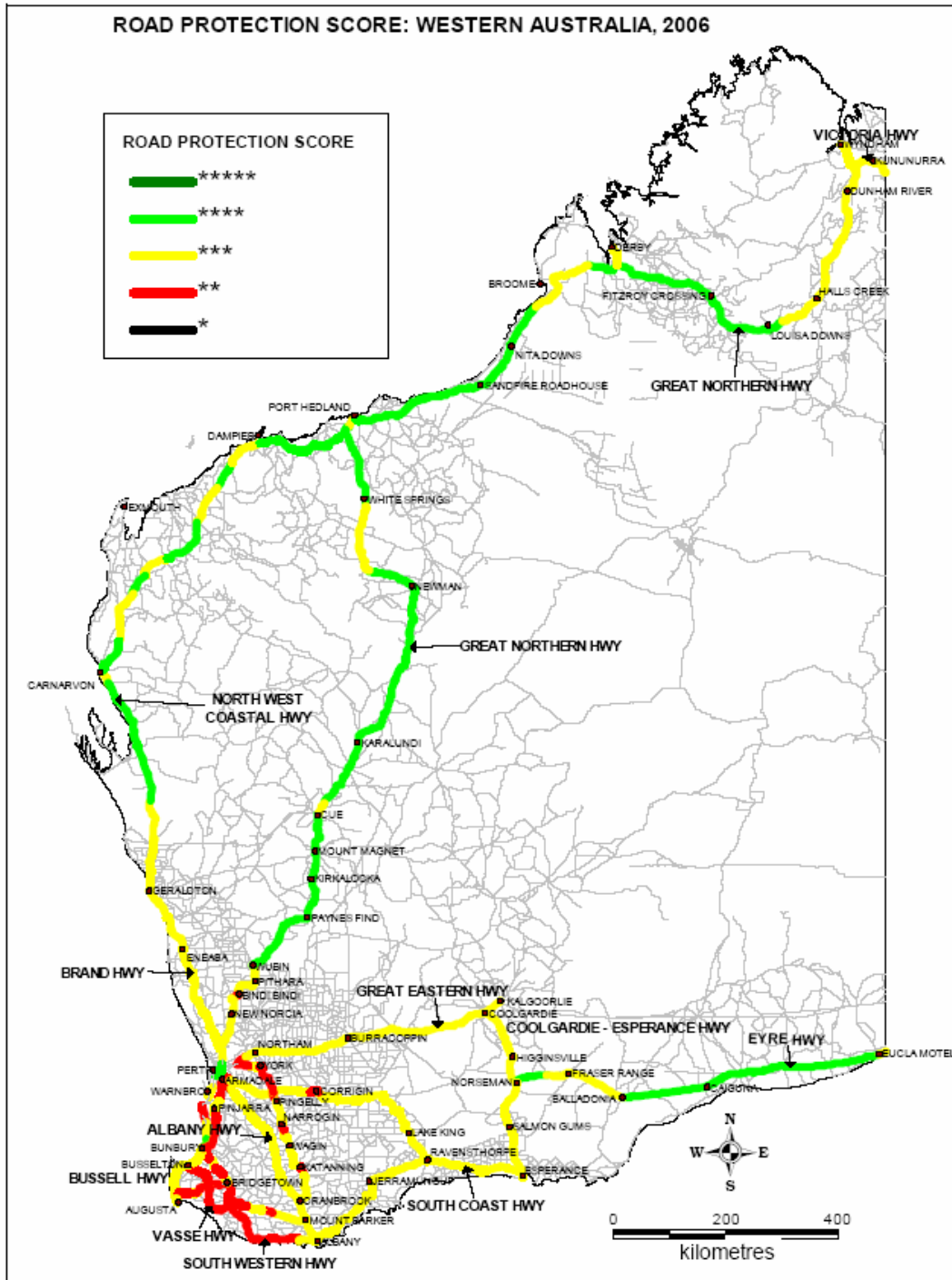


Figure 2-1: Road Protection Score Risk Map

A broad summary of the RPS rating scale is provided below to allow an appreciation of the type of road environments typical of five star through to one star roads.

Table 1 – Five star rating and typical road environments

Rating Scale	Example of Road
5 star *****	A 5 star road is a divided straight road with good delineation, wide lanes and sealed shoulders, favourable roadside conditions and grade separated intersections. No undivided roads can achieve a 5 star rating.
4 star ****	A 4 star road is a divided road with minor deficiencies in some road features such as lane width, shoulder width, horizontal alignments or roadside condition. An undivided road can be 4 star if the road has good overtaking provision, alignment, delineation, cross section and roadside environment.
3 star ***	A 3 star road is a divided road with major deficiencies in some road features (e.g. poor median protection against head-on crashes), many minor deficiencies and/or poorly designed at-grade intersections at regular intervals. An undivided road will be 3 star if it has deficiencies in some road features such as alignment, roadside condition or intersection frequency and design.
2 star **	A 2 star road is a divided road with many major deficiencies such as poor alignment, poor roadside and median protection and regular at-grade intersections An undivided road will be 2 star if it has major deficiencies in some road features (e.g. poor roadside environment, poor alignment) or many minor deficiencies (insufficient overtaking provision, lane and shoulder width, delineation etc.). A high frequency of intersections may also result in the road being rated 2 star.
1 star *	A 1 star road is a divided road that has poor alignment, in mountainous terrain, narrow lanes and sealed shoulders, poor roadside conditions and more than three 4-leg at-grade major intersections per 5km length. An undivided road will be 1 star if it has poor alignment, in mountainous terrain, narrow lanes and sealed shoulders, poor delineation and severe roadside conditions.

More information:

- <http://www.ausrap.org/ausrap/>
- Paul Roberts, Joseph Affum & Samantha Taylor (August 2006) **AusRAP Star Rating Maps and Road Protection Scores for Rural Western Australian Roads**. Perth: Royal Automobile Club of W.A. (Inc.)
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